

REMARKS

Reconsideration of the application in light of the amendments and the following remarks is respectfully requested.

Status of the Claims

Claims 1-3 are pending in this application.

Claims 1 and 3 have been amended to clarify the order of repeating layers and the structure of the claimed magnetic recording medium. No new matter has been added.

Rejection Under 35 U.S.C. § 103

Claims 1-3 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the combination of European Patent No. 540,058 to Osawa et al. ("Osawa"), U.S. Patent No. 4,557,944 to Arai et al. ("Arai"), U.S. Patent No. 6,743,503 to Chen ("Chen"), and U.S. Patent No. 5,679,473 to Murayama et al. ("Murayama").

The Examiner contends that Osawa discloses most of the features of the claimed invention. The Examiner acknowledges that Osawa does not disclose: "exposure to an atmosphere of oxygen-containing gas; magnetic layers may be repeated multiple times; [and] ferromagnetic grains and grain boundaries surrounding the grains." (Detailed Action, page 3.) However, the Examiner relies on Arai, Chen, and Murayama as disclosing these features. Applicants respectfully disagree with the Examiner.

Applicants submit that the combination of reference cited by the Examiner would not result in the product produced by independent claims 1 and 3. The methods of claims 1 and 3 result in a magnetic recording medium having "a laminate structure in which each of [the] magnetic layer components . . . is sandwiched by two of the oxide layers." (Specification, page 9, lines 1-4, and Figure 2(b).)

The Examiner contends that “Chen discloses that magnetic layers may be repeated multiple times (fig 1).” (Detailed Action, page 3.) However, the multi-layered structure disclosed by Chen does not disclose repeating magnetic layers sandwiched by two oxide layers. Rather, Chen discloses an underlayer that can be “selected from the group consisting of Pd, Pt, a Pd/Pt bi-layer, a Pt/Pd bi-layer, metals, semi-metals, non-metals, oxides, nitrides and combinations thereof.” (Chen, column 8, lines 47-51.) The repeating multilayer structure disclosed by Chen comprises “magnetic/non-magnetic layer pairs,” where “each non-magnetic layer B of each layer pair . . . comprises a non-magnetic material selected from among Pt and Pd.” (Chen, column 8, lines 55-66.) Chen only discloses using an oxide layer as the underlayer. None of the repeating layers separating the magnetic layers are oxide layers, but rather comprise a “non-magnetic material selected from among Pt and Pd.” (Chen column 8, lines 55-66.) Thus, Chen does not disclose the step of “repeating the depositing and the exposing steps at predetermined times,” that results in repeating magnetic layer sandwiched by two oxide layers, as recited by claim 1 and similarly recited by claim 3.

Chen was clearly aware that oxides could be used interchangeably with Pt and Pd in some circumstances, as evidenced by the description of the underlayer. However, in disclosing the composition of the repeating non-magnetic layers, Chen specifically limited the selection to Pt and Pd and did not include oxides, as recited by the claimed invention. Thus, Chen teaches away from using an oxide layer as part of the repeating layers.

Applicants submit that, for the above reasons, the multi-layered structure disclosed by Chen does not “sandwich” each magnetic layer by two oxide layers. Thus, Chen does not achieve the advantages that result from the “sandwich” structure, including improving “the coercive force H_c . . . by more than 200 Oe and the SNR by 1.0 dB.” (Specification, page 22, lines 22-25.)

Applicants further submit that the additional references cited by the Examiner do not disclose sandwiching each magnetic layer component between two oxide layers.

